Focus on Faculty

Dr. Paul Hanson, Chemistry Department

With knowledge of the human body increasing daily, methods of pharmaceutical synthesis are in a constant struggle to keep up. Diseases and other afflictions are identified much more rapidly than their antidotes can be devised and efficiently manufactured in the lab. Even drugs that already exist are constantly being improved upon and optimized to increase their effectiveness. In this context, the research conducted by Dr. Paul Hanson takes on a particular importance.

Since joining the Chemistry Department at the University of Kansas in 1996, Dr. Hanson has concentrated on devising new methods for the generation of molecular building blocks for pharmaceutical purposes. A major project in his group has been the production of organic ring structures containing unique components such as phosphorous and sulfur. These rings, termed heterocycles because of their atypical atoms, are of distinct pharmaceutical relevance. The molecules have inherent chemical properties that make them ideal components for drug synthesis. The Hanson group also focuses on methods involving transition metal catalysis, natural product synthesis, molecular libraries, and immobilized reagents.

Dr. Hanson is extremely influential in the classroom as well. Always a student favorite, he has taught both semesters of the undergraduate organic chemistry course for the last two years, and previously was the instructor for the organic chemistry lab course. He has also taught numerous graduate level classes, mostly dealing with advanced organic synthesis methods.

While Dr. Hanson always enjoyed the sciences, he had not identified chemistry as his career path until late in high school. After thoroughly enjoying the concepts and laboratory work of his high school chemistry course, Dr. Hanson decided to pursue chemistry in his post-secondary studies. After he received a Bachelor of Arts degree from Luther College in 1985, Dr. Hanson moved on to the University of Minnesota to complete his graduate work and obtained a Ph.D. in 1993. Prior to coming to KU, he was a post-doctoral fellow at Stanford University for three years.

As an undergraduate researcher in Dr. Hanson's group, one should not expect to be treated as inferior. During his time at Minnesota and Stanford, Dr. Hanson began to truly value the mentor-mentee environment in the lab. He maintains that the best way to learn a topic is to teach someone else,

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and he encourages his graduate students and post-docs to get involved in the education of undergraduates. Because of this, he readily invites interested undergraduates to try their hand at organic chemistry research. To date, Dr. Hanson has more than twenty individuals working is his lab, with nearly half of those being undergraduates.

Of course, the level of responsibility given to undergraduates in the Hanson Lab requires a certain amount of effort on the part of the student. When first brought onboard, undergraduates should expect to spend numerous hours being trained regarding organic chemistry techniques. The chemical reactions run in Dr. Hanson's lab require a relatively high level of expertise to effectively accomplish experimental goals.

While this sounds like a daunting task, proficiency in organic synthetic methods is a more than attainable goal for a motivated student genuinely interested in research. Continuing to apply his learning through teaching philosophy, Dr. Hanson offers those undergraduates who are particularly successful with their research to mentor younger students entering the lab.

Dr. Hanson insists that with the proper training, undergraduate research can be an extremely rewarding endeavor. Occasionally, it allows students to see a project through from beginning to end, which Hanson finds particularly valuable. He asserts that students often fall in love with the problem solving and critical thinking involved with laboratory work, and frequently pursue this interest as a career.

Though the drugs synthesized using Dr. Hanson's building blocks will always change, his role in education at the University of Kansas will remain constant. A respected teacher, talented researcher, and caring mentor, Dr. Hanson will hopefully continue to foster the intellectual growth of KU students for years to come.